International Journal of Academic Research and Development
ISSN: 2455-4197
Impact Factor: RJIF 5.22
www.academicsjournal.com
Volume 2; Issue 6; November 2017; Page No. 160-164

User acceptance, a key to effective implementation of enterprise resource planning systems in higher education

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Abstract
The success of any technology innovations lead by the acceptance of end user, many IT implementations failed as it's not accepted by the user group. ERP being the strategic application require more insights in this regard as failure rate of ERP application are very high i.e. 7 out of 10 due to lack of consideration of CSFs in ERP implementation process. Said study aims at providing an alternative view of users' enterprise resource planning (ERP) acceptance. Despite the large body of literature, there are still empirical inquiries to investigate the ERP system implementation from end-users' perspectives as well as from different organizational contexts, for the said research researcher consider the Higher educational institute. Survey based method is imposed to gather end-users' perception, and in the end, with their behavioral intention of using the ERP system. In doing so, this study incorporates the best practices of ERP system implementation projects Users participation and adoption into the extended technology acceptance model (TAM) that includes belief constructs and socio environmental construct (subjective norm). The empirical analyses show that managerial practices and socio environmental factor are significantly related to the original TAM variables in the context of ERP system. Positive effect on the perceived ease of use, suggesting a useful reference for future research.. This study would also benefit other sectors by offering valuable end users insights that enable them to appreciate and improve end-users' ERP system acceptance and Adoption.

Keywords: technology acceptance model, user acceptance, ERP, higher education

1. Introduction
Since the invention of ERP (Enterprise Resource Planning) system in late 1990's it observed significant growth from MRP-I (Material Requirement Planning) to MRP-II (Manufacturing Resource Planning). Today ERP usage not limited to manufacturing industry but its step down to education industry also. today largest universities in the world providing significant money & resources to get the benefits of this ICT enabled application to enhance their daily business activities ranging from academics management, student management, faculty management with traditional activities of payroll, accounts, HR, etc.
ERP being a strategic ICT application not getting its move in the education as it has been in the other industry sectors may be because industry uses ERP to get financial benefits, whereas education industry uses ERP for not profit purpose to enhance academic capabilities. The failure rate of ERP in the education is around 70% it means 7 out of 10 implementations fail because of improper consideration given to critical success factors (CSFs) & role of user in acceptance and adoption of ERPs.
The fate of ICT application is depending on the acceptance and Adoption of such application by user, so Researcher has used the TAM2 for designing extended TAM to support & design the conceptual model of ERP implementation.

2. Purpose of the study
[1] In general, most studies have employed the Technology Acceptance Model (TAM) to explore Users willingness to use a new information system; however, some Studies have pointed out that TAM still has room for improvement in its predictive proficiency of information system use Willingness. The purposes of this study were;

2.1 To study the concept of the TAM model of the technology acceptance and adoption process in the Educational ERP.

2.2 To study the impact of Critical Success Factors (CSFs) with the help of an Extended TAM model of the Technology acceptance for effective implementation of Educational ERP.

3. Literature Review
3.1 Technology Acceptance Model (TAM)
Many researchers use two important beliefs, perceived usefulness (PU) and perceived ease of use (PEU), of the technology acceptance model (TAM) to study user acceptance of information technology. PU and PEU are used to interpret, diagnose, and forecast user attitude, intention, and behavior toward an information technology.

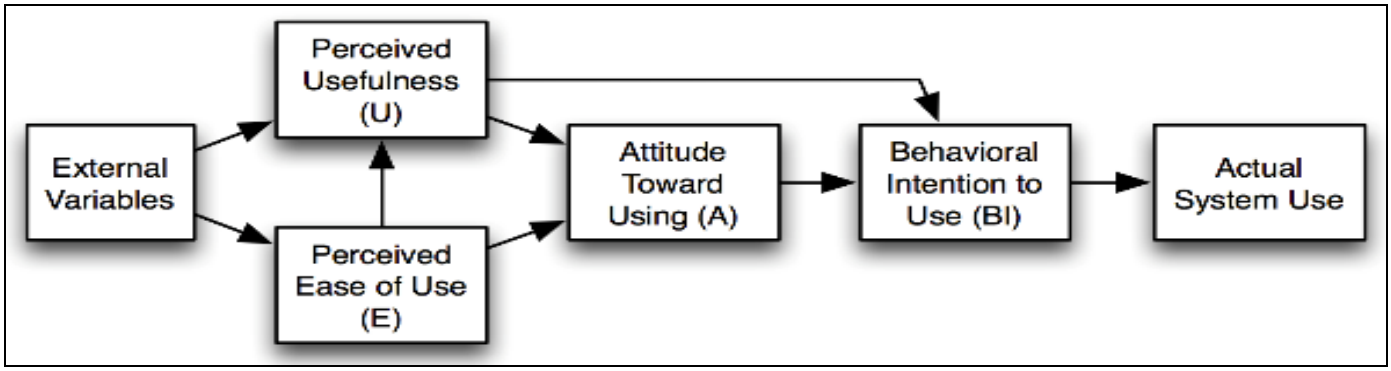

Fig 1: Technology Acceptance Model

TAM2 was developed by Venkatesh and Davis, and it was first introduced in Management Science in 2000 on the research paper titled, "A Theoretical Extension Perceived Usefulness (PU) Perceived Ease of Use (EOU) Attitude toward Behavior Behavioral Intention Actual Behavior External Variables 56 of the Technology Acceptance Model: Four Longitudinal Field Studies" (Venkatesh & Davis 2000). The goal of TAM2 is a theoretical extension of the Technology Acceptance Model (TAM) to include additional key determinants of TAM that explain perceived usefulness and usage intensions in terms of social influence and cognitive instrumental processes and to understand how the effects of these determinants change with increasing user experience over time with the target system. A better understanding of the determinants of perceived usefulness would enable us to design organizational interventions that would increase user acceptance and Adaptation of new systems (technologies).

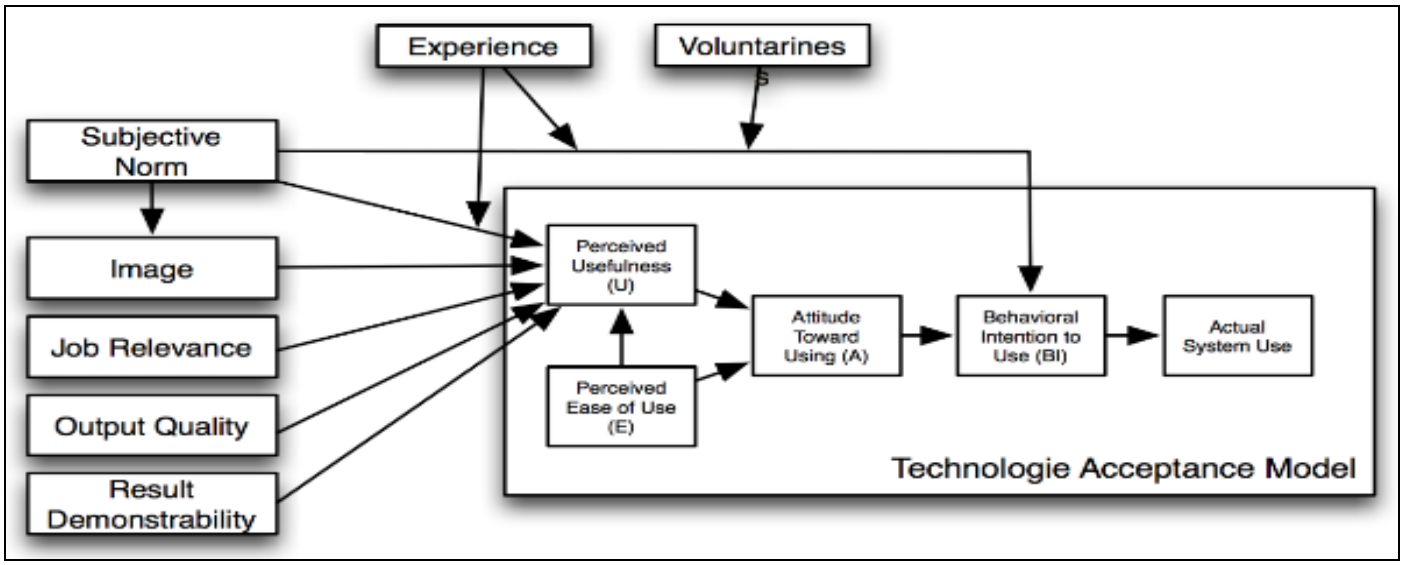

Fig 2: Technology Acceptance Model (TAM) 2

3.2 Critical Success Factors (CSFs)

[2] Critical success factors of ERP system implementation are the factors, where the ERP system implementation can be measured to its success. The identified critical success factors are: Top Management, Change Management, Project Management, Business process Re-Engineering, IT Infrastructure, Communication, and Users participation etc.

For scope of this study researcher have considered the most cited critical success factors as;

User Acceptance: User Acceptance is cited as one of important CSF, user acceptance will lead to effective implementation and adoption of ERP system in the organization. Training and education on ERP system is an important component in ERP implementation projects and is recommended before, during, and after implementation [3]. Training and education on an ERP system are defined as the degree to which the user thinks that he/she has had enough formal and informal training after ERP implementation.

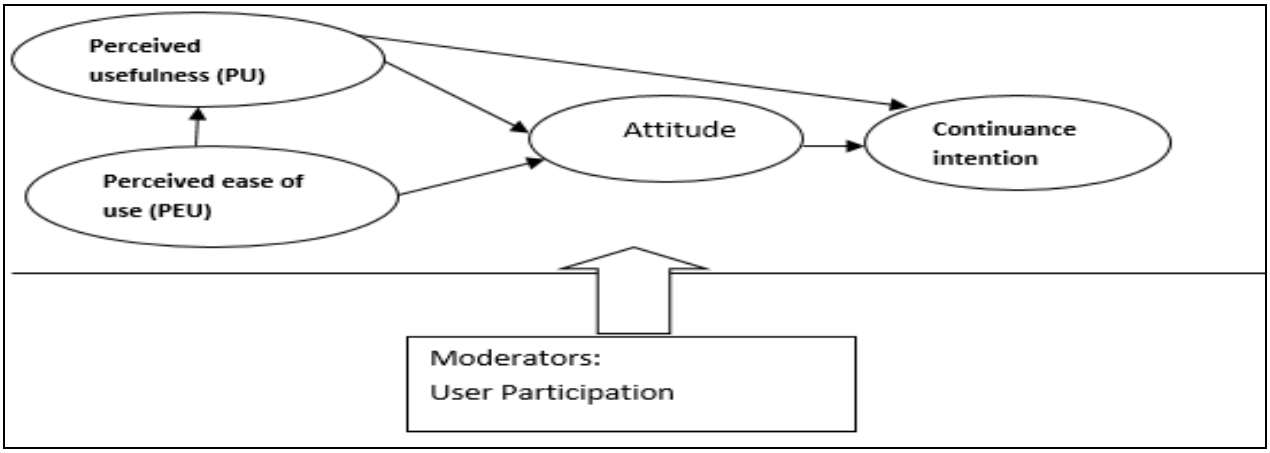

Fig 3: Research Framework Design

4. Research Method

4.1 Introduction

This is focuses on methods used to collect and analyze data in this research. With a view acceptance of ICT applications in Education Industry to enhance the effectiveness of continuous quality improvement academics in an Education institutions. This research used a standard questionnaire based on Technology Acceptance Model (TAM) which are Reaction of students, learning of students, Behavior change in students and Result of the Participation. These levels are the indicators of effectiveness of User Participation in Acceptance and Adoption. Primary Data is collected from the users. For analyzing the data and significant tests the statistical package for social sciences (SPSS) used. Separate or combined based on the author's requirement.

4.2 Measurement Scale

The questionnaire consisted of a series of statements, where the respondents needed to provide answers in the form of agreement or disagreement to express their attitude towards the Acceptance of Educational ERP System. A Likert scale was used so that the respondent could select a numerical score ranging from 1 to 5 for each statement to indicate the degree of agreement or otherwise. Where 1, 2, 3, 4 and 5 denote "Strongly agree", "Agree", "Neutral", "Disagree", and "Strongly Disagree" respectively.

Table 1: Reliability Statistics

Sr. No	Scale	Cronbach's alpha
1	Perceived usefulness (PU) of User Acceptance for an Educational ERP	.840
2	Perceived ease of use (PE) of an Educational ERP by User Acceptance	.838

As can be seen in Table 1, Cronbach's alpha coefficient was calculated at $\alpha > 0.05$ indicating an acceptable reliability coefficient.

5. Scope of the study

This study proposes the following hypotheses:

Hypothesis 1

H0: Perceived usefulness (PU) of User Acceptance for an Educational ERP do not differ significantly between male and female

H1: Perceived usefulness (PU) of User Acceptance for an Educational ERP differ significantly between male and female

Hypothesis 2

H0: Perceived ease of use (PE) of an Educational ERP by User Acceptance do not differ significantly between male and female

H1: Perceived ease of use (PE) of an Educational ERP by User Acceptance differ significantly between male and female

Hypothesis 3

H0: Perceived ease of use (PE) of an Educational ERP by User Acceptance do not differ significantly between age group.

H1: Perceived ease of use (PE) of an Educational ERP by User Acceptance differ significantly between age group

Hypothesis 4

H0: Perceived usefulness (PU) of an Educational ERP by User Acceptance do not differ significantly between Qualifications.

H1: Perceived usefulness (PU) of an Educational ERP by User Acceptance differ significantly between Qualifications.

Hypothesis 5

H0: Perceived usefulness (PU) of an Educational ERP by User Acceptance do not differ significantly between Education Background.

H1: Perceived usefulness (PU) of an Educational ERP by User Acceptance differ significantly between Education Background

6. Analysis of data

Hypothesis 1

H0: Perceived usefulness (PU) of User Acceptance for an

Educational ERP do not differ significantly between male and female

H1: Perceived usefulness (PU) of User Acceptance for an Educational ERP differ significantly between male and female

Table 2: Test Statistics

	Perceived usefulness (PU) of User Acceptance for an Educational ERP
Mann-Whitney U	879.000
Wilcoxon W	1407.000
Z	-1.278
Asymp. Sig. (2-tailed)	.201
a. Grouping Variable: Gender of Respondent	

Since sig=0.201 > 0.05 we accept null hypothesis hence Perceived usefulness (PU) of User Acceptance for an Educational ERP do not differ significantly between male and female

Hypothesis 2

H0: Perceived ease of use (PE) of an Educational ERP by User Acceptance do not differ significantly between male and female

H1: Perceived ease of use (PE) of an Educational ERP by User Acceptance differ significantly between male and female

Table 3: Test Statistics

	Perceived ease of use (PE) of an educational ERP by user acceptance
Mann-Whitney U	869.500
Wilcoxon W	1397.500
Z	-1.327
Asymp. Sig.(2-tailed)	.184
a. Grouping Variable: Gender of Respondent	

Since sig =0.184 > 0.050 null hypothesis retained and Perceived ease of use (PE) of an Educational ERP by User Acceptance do not differ significantly between male and female

Hypothesis 3

H0: Perceived ease of use (PE) of an Educational ERP by User Acceptance do not differ significantly between age group.

H1: Perceived ease of use (PE) of an Educational ERP by User Acceptance differ significantly between age group

Table 4

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
Perceived ease of use (PE) of an Educational ERP by User Acceptance	Between Groups	3.864	2	1.932	3.606	.031
	Within Groups	50.361	94	.536		
	Total	54.225	96			

Since sig=0.031 < 0.05 reject null hypothesis and accept alternative hypothesis, hence Perceived ease of use (PE) of an Educational ERP by User Acceptance differ significantly between age group

Hypothesis 4

H0: Perceived usefulness (PU) of an Educational ERP by User Acceptance do not differ significantly between Qualifications.

H1: Perceived usefulness (PU) of an Educational ERP by User Acceptance differ significantly between Qualifications.

Table 5

	Perceived usefulness (PU) of User Acceptance for an Educational ERP
Mann-Whitney U	90.000
Wilcoxon W	100.000
Z	-1.802
Asymp. Sig. (2-tailed)	.071
Exact Sig. [2*(1-tailed Sig.)]	.083[a]
a. Not corrected for ties.	

Since p=0.083 >0.05 null hypothesis retained, hence Perceived usefulness (PU) of an Educational ERP by User Acceptance do not differ significantly between Qualifications.

Hypothesis 5

H0: Perceived usefulness (PU) of an Educational ERP by User Acceptance do not differ significantly between

Education Background.

H1: Perceived usefulness (PU) of an Educational ERP by User Acceptance differ significantly between Education Background

Table 6

	Perceived usefulness (PU) of User Acceptance for an Educational ERP
Mann-Whitney U	894.000
Wilcoxon W	3379.000
Z	-.425
Asymp. Sig. (2-tailed)	.671

Since p=0.671 >0.05 null hypothesis retained, hence Perceived usefulness (PU) of an Educational ERP by User Acceptance do not differ significantly between Education Background.

7. Discussion Conclusion

The causal relationship model of the technology acceptance process of Educational ERP system includes variables that benefit the development of innovative information technologies and communication tools in order to promote teaching and learning. The TAM describes the behaviors that allow users to adopt and use technologies. This model consists of perceived usefulness, perceived ease of use, attitude, actual use, user acceptance & satisfaction and intention to use. These variables show the factors that affect the technology acceptance. Moreover, there are additional variables i.e. Critical Success Factors (CSFs) like Top Management, Change Management, Project Management, Business process Re-Engineering, IT Infrastructure, Communication, and User training, User Participation that if address carefully lead to effective implementation. Scope of this study restricted to the most cited Critical Success Factor as User Acceptance, which influence the adaptation and effective implementation of ERP. The result of this research is invaluable as institutions could use the information to plan the users' behaviors in using technologies and their acceptance.

The implications for researchers and practitioners include an extended version of TAM through factors to improve the explanatory power of ERP usage which knows as Critical success factors (CSFs). This research has the potential for practical application in the degree of ERP system usage. By confirming external factors, organizations should work on their organizational culture and business process fit, and conversely on their ERP system, to ensure better data quality, system performance, and user manuals for their users, thereby improving the degree of attitude towards an ERP system.

This study has certain limitations which may present the opportunity for further research. Since this relies only on one Critical Success Factor as User Acceptance future research can be carryout to explore the other important critical success factors (CSFs) in order to observe effective implementation with user Participation on TAM should be researched.

8. References

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